TEMPERATURE CONTROLLER FOR A WOOD GASIFYING BOILER

EKOSTER 3

Operation Manual

DK System

Safety Guidance and Installation Recommendations

❑ The controller is intended for operation with wood-gasifying central heating boilers.

❑ Installation of the controller should be entrusted to an authorized person.

❑ Connect the controller to a safety contact socket.

❑ The boiler is required to have its own protections against excessive growth of the boiler temperature, caused e.g. by improper operation of the controller or of devices cooperating therewith.

❑ The controller should be placed at a location preventing it from heating to a temperature above 40 °C.

❑ The controller may not be exposed to splashing with water or to conditions causing steam condensation (e.g. rapid changes of the ambient temperature).

❑ The device should be installed and operated in accordance with the installation description and the principles of handling of electrical devices.

❑ Blowing of fuses as a result of improper connection of cables or a short circuit in the electrical installation shall not constitute grounds for a warranty repair.

❑ Before launching the controller, check the correctness of electrical connections.

❑ The controller is protected with two 5 A fuses.

❑ The connection of supply lines and fuse replacement should be performed with the controller disconnected from the power supply (the plug supplying the controller must be removed from the mains socket). Connection of receivers and fuse replacement while the mains plug of the controller is connected may cause electric shock.

❑ Connection lines of this controller may only be replaced by the manufacturer or its authorized servicing facility.

❑ Use of a damaged controller is prohibited.

Cautions: The fuses should always be replaced when the device is disabled and the plug is removed from the mains socket.

Contents

1. Controller Description

The EKOSTER 3 controller is intended to control the operation of a wood-gasifying boiler, as well as to enable the central heating pump and the utility hot water (UHW) pump in central heating installations.
The controller has the following functions:

❑ maintenance of the preset boiler temperature through control of the blowing and exhaust ventilators;

❑ preset air flow power and smooth start of the ventilator

❑ programmable air flow through the boiler

❑ automatic control deactivation upon extinguishing the boiler

❑ ventilator operation stoppage for the time of stoking of the boiler

❑ control of operation of the central heating circulation pump, depending on its preset operation temperature

❑ an option to enable or disable hot water priority

❑ control of a loading pump of the utility hot water heater, depending on the required temperature

❑ protection system - TERMIK mechanical thermal fuse

❑ COMFORT SYSTEM function to protect the pump against buildup of scale

❑ an option to use opening sensors for the flue gas flap and door

❑ a function of protection of the installation against boiler freezing or overheating

❑ temperature sensor damage indication

❑ cooperation with a room thermostat

2. Description of the Housing Parts

1. Display
2. Indicator lights
3. Return / STOKING button
4. "Up" setting button (▲)
5. MENU button
6. "Down" setting button (▼)
7. Power switch

Description of indicator lights

⚙ blowing fan
🌀 exhaust fan
◉ CH pump
◉⊐ UHW pump

Fig.1 Description of the controller's front panel
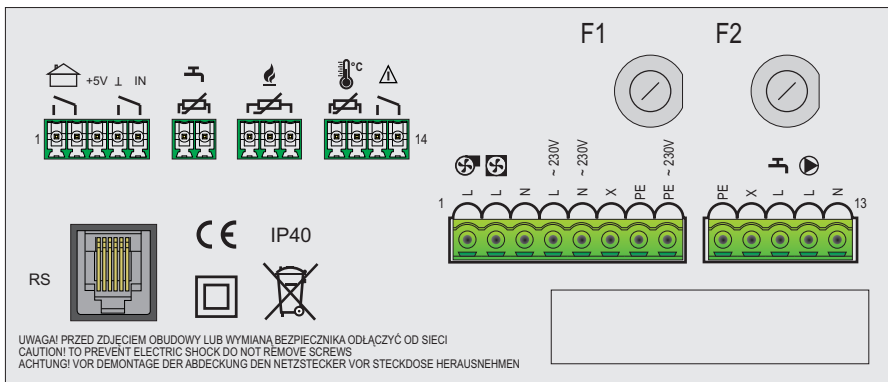
		room controller		L ⚙	L 230V blower ventilator output
⊥ IN		flue gas flap and door sensor		L 🌀	L 230V exhaust ventilator output
⊐		UHW sensor		L ⊐	L 230V UHW pump output
🔥		flue gas sensor		L ◉	L 230V CH pump output
🌡°c		boiler sensor		F1, F2	fuse sockets
⚠		thermal fuse		RS	servicing socket

Fig. 2. Description of outputs on the rear wall of the controller

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3. Description of Connections
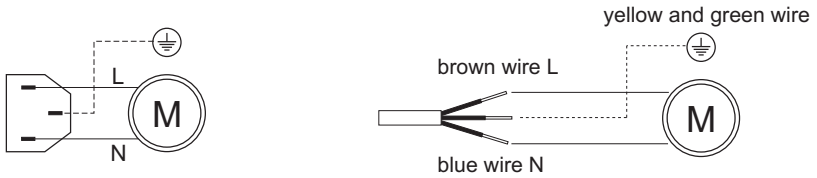
Fig. 3 Diagrams of connection of the power line to the pumps and ventilators.
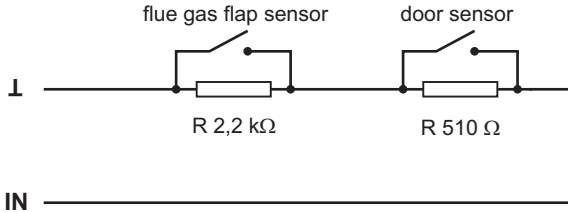
Fig. 4 Diagram of connection of flue gas flap and door sensors.
A detailed description is found in chapter 33 of the manual.

Caution: Opening of the flue gas flap or the door is indicated by an alarm and a message on the display. The exhaust ventilator is enabled and the blower ventilator is disabled.

4. Controller Installation

4.1 Controller installation - connection to the electrical installation

1. Connect the appropriate supply wires of pumps and ventilators.
2. Install all necessary sensors.
3. Insert the controller supply cable plug to a ~ 230 V socket.
4. Turn the controller on with the power switch.

Cautions: If the display does not light up upon turning the controller on, check if there is voltage in the mains socket, then check the fuses and, if damaged, replace them with new 5 A ones. If the display screen remains unlit after the replacement of fuses, contact the technical support.
Always replace the fuse when the device is inactive and the plug is removed from the mains socket.

5. Diagram of the Controller's Connection to a Heating Installation
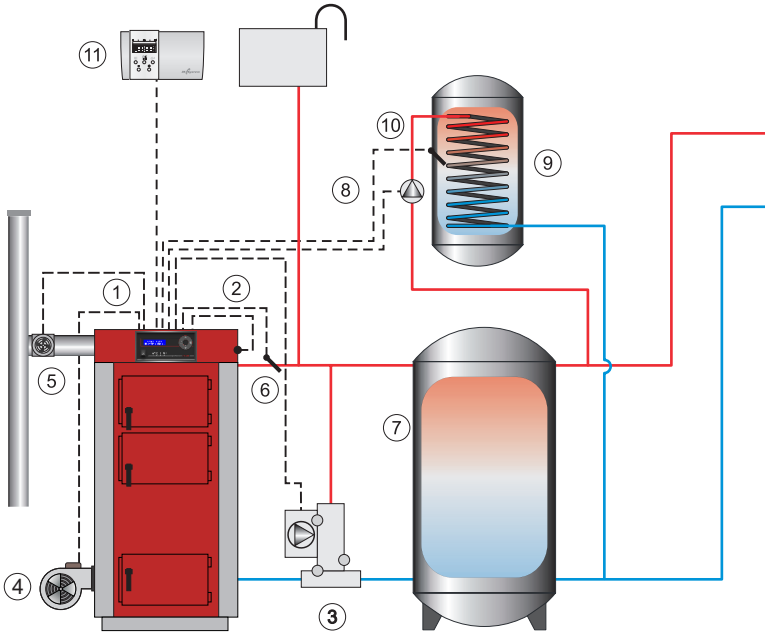
1. EKOSTER 3 controller
2. Thermal fuse
3. Central heating pump in a thermostatic return temperature safety system
4. Blower ventilator
5. Exhaust ventilator
6. Boiler temperature sensor
7. Accumulation tank
8. UHW pump
9. UHW tank
10. UHW heater sensor
11. Room controller

Fig. 5 A sample diagram of a heating installation with an EKOSTER 3 controller and no shut-off or protection devices. This cannot substitute for a professional design at the installation site.

6. Main Menu - Structure

MAIN MENU   press 📖

| Temperatures | Temp. Settings 60°÷97° | UHW settings: 40°÷70° | Flue Gas Temp. : 110°÷280° |
| | | This window is not visible if UHW is inactive | This window is not visible if the option is inactive |

| Prog. Version | Ekoster 3 ver. 1.03 |

| Fact. Settings | Fact. Settings + Confirm. |

| Manual Work | Manual Work Air flow: 1%÷100% | E.Vent.   B. Vent CH   UHW |

| Clock | Clock Šun   12:00 |

| Work Param. | Work Param. Boiler Hyst   :1°÷9° | Work Param. CH Pump   :60°÷90 | Ext. dt   :10°÷30° | Ext. time<m>0÷45 | Heating Air Flow 1%÷100% |

7. Servicing Menu - Structure

SERVICING MENU   press 📖 and hold for approx. 5 sec

Serv. Param.	Stoking : 0:30÷9:30	Vent. Sust. Air Flow 1%÷100%	Vent. Sust. Work <sec> off÷90	Vent. Sust. Pause<min> 5÷240
	Flue Gas Temp. Hysteresis:10°÷90°	Flue Gas Temp. : no/yes	Support : no/yes	Ventilator Smooth : no/yes
	Flue Gas Temp. Ext. off/50°÷150°	Flue Gas Temp. Ext. time<m> 1÷45	Room Controller : no/yes	

| Fact. Service | Fact. Serv. + Confirm. |

| Work Mode | Work Mode CH only / UHW priority / CH and UHW |

| UHW Service | UHW Serv. Legionella : no/ yes | Hot Water Boil.-Heater :2°÷20° | Hot Water Hysteresis   :2°÷9° |

| Alarm | Alarm Door Sens. :no/yes | Alarm Flap Sens. :no/yes | Alarm Pump Temp. :80°÷99° | Alarm Temperat. :80°÷99° |

| Max Temp. | Boiler Temp. Max Temp.:85°÷97° | Flue Gas Temp. Max Temp.:180°÷280° |

| Language | Language polski / українська / русский / slovencina / cesky / Deutsch / english |

8. Table of Settings - Main Menu

	Name	Unit	Settings Range	Factory Settings
MAIN MENU	**TEMPERATURES**			
	boiler	°C	60÷97	65
	UHW	°C	40÷70	50
	flue gas	°C	110÷280	200
	WORK PARAMETERS			
	boiler hysteresis	°C	1÷9	2
	central heating pump	°C	60÷90	65
	extinction dt	°C	10÷30	10
	extinction time	min	0÷45	30
	air flow power, heating	%	1÷100	100

9. Table of Settings - Servicing Menu

	Name	Unit	Settings Range	Factory Settings
SERVICING MENU	**SERVICING PARAMETERS**			
	stoking	min	0:30÷9:30	1:30
	vent. sust. air flow power	%	1÷100	100
	vent. sust. work	sek	off÷90	10
	vent. sust. pause	min	5÷240	20
	ventilator smooth	-	yes/no	no
	exhaust vent. (support)	-	yes/no	no
	flue gas temperature	-	yes/no	no
	flue gas temp. – hysteresis	°C	10÷90	50
	flue gas temp. – extinction	°C	off/50÷150	90
	flue gas temp. – ext. time	min	1÷45	15
	room controller	-	yes/no	no
	OPERATION MODE	-	CH only / CH and UHW / UHW priority	CH only
	UHW SERVICING			
	legionella	-	yes/no	no
	boiler-heater	°C	2÷20	5
	hysteresis	°C	2÷9	5
	ALARM			
	door sensor	-	yes/no	no
	flue gas flap sensor	-	yes/no	no
	pump temp.	°C	80÷99	80
	boiler temp.	°C	80÷99	85
	MAX. TEMPERATURE			
	max. boiler temp.	°C	85÷97	90
	max. exhaust temp.	°C	180÷280	280

10. Description of main screens

MAIN SCREEN 1 - basic screen

```
1 —— 06:25      Temp:47°  —— 2
3 —— Heating           ↑   —— 4
```

1. Current hour / week day
2. Measured boiler temperature / Preset temperature
3. Work status: START / STOP/ HEATING / SUSTAINING / STOKING / NO FUEL
4. Temperature increase ↑ or drop ↓ indication

MAIN SCREEN 2

Flue gas and UHW measured temperatures (if the respective options are activated and the sensors are connected), enter by pressing ▲.

```
1 —— Flue T.        130°
2 —— UHW T.       50/45°
```

1. Flue gas measured temperature
2. UHW temperature: preset / measured

MAIN SCREEN 3

Current controller operation mode, enter by pressing ▼.

```
Operation mode
CH and UHW
```

11. First Launch and Clock Setting

Turn the controller on with the power switch - the display will show the information: name of the controller and number of the programme (e.g. ver. 1.03).

```
DK SYSTEM
EKOSTER 3
```

```
ver.    1.03
```

11. First Launch and Clock Setting (cont'd)

The first launch of the controller and adaptation thereof to the local conditions and construction requirements, as well as training in operation thereof, shall be performed by an appropriately authorized installation company. The controller is factory set and ready for work. See the "Table of Settings".
During the first launch, the installation company may perform further settings in accordance with the customer's wishes. All settings may be individually changed at any moment.
Power outages do not cause any loss of data from the device's memory, except the clock settings.

During the first launch, the display will show a blinking clock and week day.

| 06:25   Temp:47° |
| STOP |

To set the correct date and hour, press 📖 then, select the desired week day using ▲ ▼ and accept by pressing 📖 .

| ▼▼▼ |
| Tue   12:00 |

Set the current hour and minutes in an analogous way.

| ▼▼ |
| Tue   12:00 |

Upon entering the settings and pressing ↩ twice, the display will change to the main screen.

| 06:25   Temp:47° |
| Heating   ↑ |

12. Setting of Boiler Work Parameters and Ignition

Set the boiler and UHW preset temperatures under Main Menu / Temperature. In order to ignite the furnace:

1. Fill the boiler chamber with fuel and ignite it.
2. Close the furnace chamber door tightly.
3. Start the ventilator by pressing ↩ .

When the boiler temperature increases to the level determined by the "dt" parameter (see "Servicing Menu / Servicing Parameters / Extinguishing dt"), the controller will transfer from operating in the START mode into the HEATING mode.

When the desired temperature is achieved, the controller will transfer to operation in the SUSTAINING mode until the temperature falls below the boiler hysteresis - for more, see Working Parameters - HYSTERESIS.

13. Stoking of Fuel into the Boiler

While stoking fuel into the boiler, pause the operation of the air blower. This should be done by pressing ↰ ; the ▮ symbol will appear onscreen, along with the time countdown to the restart. The necessary time for stoking is set under Servicing Menu / Servicing Parameters / Stoking.

Pressing of ↰ during the countdown exits the stoking mode and causes the controller to return to automatic operation.

```
▮1:25        Temp:47°
Stoking            ↑
```

⚠️ **Caution:** During the stoking, the exhaust ventilator is enabled. The blower ventilator is disabled.

14. Boiler Shutdown

The end of the boiler's operation may take place as a result of lack of fuel or completion of the extinguishing process.
In case of lack of fuel, the message **"No fuel"** will appear.

```
 06:25      Temp:22°
No fuel
```

The message "No fuel" will appear and the device will go into the Stop mode when:
1. The temperature drops below the value determined by the dt parameter and lasts for a period determined by the "Extinction Times" parameter.
2. The flue gas temperature drops below the "Flue Gas Temperature - Extinction" parameter for a time longer than the "Flue Gas Temperature - Extinction Time" parameter (only if the "flue gas sensor" option is on).

15. Main Menu - Temperatures

This window enables entering the settings of the preset temperatures of the boiler, UHW and flue gas.

```
< Temperatures >
```

To enter the settings: Main Menu / Temperatures

15.1 Preset Boiler Temperature

This parameter determines the preset boiler temperature; when it is reached, the ventilators will be disabled and the controller will enter the "Sustenance" mode.

```
        Settings
Temperat.        :65°
```

Range of changes: 60° ÷ 97°
Factory setting: 65°

15.2 UHW Temperature

This parameter determines the UHW temperature; when it is reached, the UHW pump will be disabled.
This window is not visible if the UHW is inactive.

```
        Settings
UHW              :50°
```

Range of changes: 40° ÷ 70°
Factory setting: 50°

15.3 Flue Gas Temperature

This parameter determines the flue gas temperature; when it is reached, the ventilators will be disabled and an alarm with a "Flue Gas T." message will be triggered.
The window is not visible if the option is inactive.

```
Flue Gas Temp.
              :200°
```

Range of changes: 110° ÷ 280°
Factory setting: 200°

16. Main Menu - Programme Version

The window contains information on the version of the software installed in the controller.

```
< Prog. Version >
```

```
   Ekoster 3
   ver. 7.2
```

17. Main Menu - Factory Settings

This function is intended to remove the user's preset parameters and to restore the factory settings.

< Fact. Settings >

To enter the settings: Main Menu / Factory Settings

The restoring of the factory settings of the parameters should be confirmed by pressing ▲ .

Fact. Settings
+ Confirm

Tip: The restoration of the factory settings only applies to the settings of parameters available in the Main Menu. The restoration of factory settings of all parameters should be performed under Servicing Menu / Fact. Servicing.

18. Main Menu - Manual Work

This function allows testing of correct operation of individual outputs.

< Manual Work >

18.1 Manual Work - Air Flow Power

This parameter enables setting the power with which the ventilator is to operate during MANUAL WORK (testing).

Manual Work
Air Flow: 50%

Range of changes: 1°÷100°
Factory setting: 50°

18.2 Manual Work - testing of outputs

This parameter enables setting the power with which the ventilator is to operate during MANUAL WORK (testing).

The tested output is selected by pressing ▐▌ , and enabled/disabled by pressing ▲ or ▼. The currently tested output is indicated with a blinking symbol on the screen, and enabling thereof - with the appropriate indicator light.

E.Vent.   B.Vent.
CH   UHW

19. Main Menu - Clock

The CLOCK function enables change of the preset hour and week day. The parameter to be changed is selected by pressing ▮▮ , and its value changed by pressing ▲ or ▼ .

| < | Clock | > |

▼▼▼
Tue   12:00

Upon entering the settings and pressing ↰ twice, the programme exits to the main screen.

20. Main Menu - Work Parameters

The WORK PARAMETERS function enables setting of the operation parameters of the boiler, CH pump and ventilator.

To enter the settings: Main Menu / Work Param.

< Work Parameters >

20.1 Working Parameters - Hysteresis

The parameter determines the number of degrees centigrade by which the boiler temperature must drop below the preset value so the controller would enter the HEATING operation mode.

Work Parameters
Boiler Hyst.   : 5°

Range of changes: 1°÷ 9°
Factory setting: 5°

20.2 Working Parameters - CH Pump

The parameter determines the temperature the reaching of which will enable the CH pump.

Work Parameters
CH Pump   : 65°

Range of changes: 60°÷ 90°
Factory setting: 65°

20.3 Extinction - dt parameter

The parameter determines by how many degrees centigrade the boiler temperature should be lower than the preset value so that the extinction time countdown would begin, followed by shutdown of the boiler - see Extinction Time Adjustment.

Ext. dt   : 10°

Range of changes: 10°÷30°
Factory setting: 10°

Example:
 - preset boiler temperature: 60 °C
 - "dt": 10 °C
When the temperature falls to the level of 50 °C (60 °C - 10 °C), the controller will start counting down the set time - see Extinction Time Adjustment - following which, the ventilators will finally shut down.

20.4 Extinction Time

This parameter enables setting of the controller operation time (in minutes) during the extinction, i.e. upon the drop of the boiler temperature by the **"dt"** parameter. Upon the lapse of this time, the boiler will shut down.

Ext.<min>   :30

Range of changes: 0÷45 min
Factory setting: 30 min

20.5 Working Parameters - Heating - Air Flow Power

This parameter enables setting of the power with which the blower ventilator will operate in the HEATING mode.

**Heating
Air Flow   : 100%**

Range of changes: 1% ÷ 100%
Factory setting: 100%

21. Servicing Menu - Servicing Parameters

21.1 Servicing Parameters - Stoking - Ventilator Pause

This parameter determines the duration of the pause in the blower ventilator's operation, necessary to stoke up the boiler.

**Stoking
            : 1:30**

Range of changes: 0:30 ÷ 9:30
Factory setting: 1:30

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21.2 Servicing Parameters - Sustaining - Air Flow Power

This parameter enables setting of the power with which the blower ventilator will operate in the Sustaining mode.

```
Vent. Sust.
Air Flow    :100%
```

Range of changes: 1% ÷ 100%
Factory setting: 100%

21.3 Servicing Parameters - Sustaining - Ventilator Work

This parameter determines the ventilator operation time (in seconds) in the Sustaining operation mode.

```
Vent. Sust.
Work <sec>      :10
```

Range of changes: off ÷ 90
Factory setting: 10

21.4 Servicing Parameters - Sustaining - Ventilator Pause

This parameter determines the ventilator pause time (in minutes) in the Sustaining operation mode.

```
Vent. Sust.
Pause<min>     : 20
```

Range of changes: 5 ÷ 240
Factory setting: 20

21.5 Servicing Parameters - Ventilator - Smooth Operation

This parameter enables or disables smooth operation of the ventilator. Disabling of smooth operation will cause the ventilator to start up straight away with full preset power, without a smooth start.

```
Ventilator
Smooth: no
```

Range of changes: yes / no
Factory setting: no

21.6 Servicing Parameters - Ventilator Support

This parameter enables or disables operation of the exhaust ventilator. This ventilator operates simultaneously with the blower ventilator (except Stoking).

```
Support
            : no
```

Range of changes: yes / no
Factory setting: no

21.7 Servicing Parameters - Flue Gas Temperature

This parameter enables or disables the flue gas temperature measurement function.

The parameter should be activated upon connection of a flue gas sensor.

```
Flue Gas Temp.
                : no
```

Range of changes: yes / no
Factory setting: no

21.8 Servicing Parameters - Flue Gas Temperature - Hysteresis

This parameter determines the value by which the flue gas temperature must drop upon exceeding the preset temperature to trigger the alarm and restore the boiler to normal operation.

```
Flue Gas Temp.
Hysteresis   : 50°
```

Range of changes: 10°÷90°
Factory setting: 50°

21.9 Servicing Parameters - Flue Gas Temperature - Extinction

This parameter determines the value of the flue gas temperature. Upon a drop below this value, the boiler will enter the "Extinction" operation mode and the extinguishing time countdown will start. Upon the lapse of that time, the boiler will shut down.

```
Flue Gas Temp.
Ext.         : 90°
```

Range of changes: off/50°÷150°
Factory setting: 90°

21.10 Servicing Parameters - Flue Gas Temperature - Extinction Time

This parameter enables setting of operation time of ventilators in the "Extinction" mode upon the drop of the flue gas temperature below the preset value. Upon the lapse of that time, the boiler will shut down.

```
Flue Gas Temp.
Ext. Time.<m> : 15
```

Range of changes: 1÷45
Factory setting: 15

21.11 Servicing Parameters - Room Controller

This parameter activates cooperation of a room controller with the Ekoster 3 controller.

The signal from the room controller enables or disables the CH pump.

```
Room Controller
              :no
```

Range of changes: yes / no
Factory setting: no

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22. Servicing Menu - Factory Settings

This function is used to remove the parameters set by the user and to restore the factory settings. Change of the parameters to factory settings should be performed by pressing ▲ .

< Factory Settings >

Factory Settings
+ Confirm.

23. Servicing Menu - Work Mode

This window enables selection of the work mode in which the controller is to operate.
To enter the settings: Servicing Menu / Work Mode

Work Mode
CH only

Range of changes: CH only / CH and UHW / UHW priority
Factory setting: CH only

Guidance: When enabling the "UHW Priority" or "CH and UHW" mode, the necessary precondition for enabling of the UHW pump is reaching the minimum difference of temperatures between the boiler and the utility hot water heater.

UHW priority means that when the water temperature in the UHW heater falls below the preset value, the boiler stops working for central heating and starts heating the utility water.

24. Servicing Menu - UHW Servicing

This function sets the parameters of the UHW circulation.

< UHW Serv. >

24.1 UHW Servicing - Legionella Protection

This function protects the UHW installation and the UHW heater against development of bacteria from the Legionella group.
To enter the settings: Servicing Menu / UHW Servicing / Legionella

UHW Serv.
Legionella : no

Range of changes: yes/no
Factory setting: no

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24.1 UHW Servicing - Legionella Protection (cont'd)

This function is only active when UHW heating mode is on and the "Legionella Protection" function is enabled (the factory setting is "off"). The function is enabled at 1:00 a.m. on Mondays. The boiler is heated to the maximum allowable temperature of adjustment (as set in the servicing menu). The UHW pump operates until 1:54 a.m., provided that the boiler temperature is higher than the UHW temperature. The central heating pump and circuits 3,4,5 (valve and pump) are excluded. At 2:00 a.m., the boiler reverts to normal operation.

Caution: During the hours of operation of the "Legionella Protection" function, take particular caution during hot water intake to avoid scalding. The hot water at this moment reaches a temperature of approx. 70°. To obtain full disinfection of the UHW heater, it is recommended to set the boiler temperature to at least 70°. The enabled function is indicated by the **"!"** symbol.

24.2 Difference in Temperatures between the Boiler and the UHW Heater

This parameter determines the minimum difference in measured temperatures between the boiler and the utility hot water heater, which must occur if hot water heating is to be cost-effective. If this difference is lower than the preset value, the utility hot water pump will not be enabled (regard-less of whether or not the hot water priority option is enabled).

```
Hot Water
Boil.-Heater:  5°
```

Range of changes: 2°÷20°
Factory setting: 5°

Tip: A necessary prerequisite for enabling of the UHW pump is achievement of a minimum difference in measured temperatures between the boiler and the heater.
The controller must be set in the "CH and UHW" or "UHW Priority" work mode. For settings, see "Servicing Menu / Work Mode".

24.3 UHW pump operation hysteresis

This parameter determines the number of centigrade degrees by which the temperature of the utility hot water heater must drop below the preset value to enable the utility hot water pump.

```
Hot Water
Hysteresis:    5°
```

Range of changes: 2°÷9°
Factory setting: 5°

25. Servicing Menu - Alarms

This menu enables setting of values the exceeding of which will trigger an alarm.

To enter the settings: Servicing Menu / Alarm

```
<  Alarm  >
```

25.1 Alarm – Door Opening Sensor

This parameter allows enabling of an alarm to indicate opening of the door.

For connection description, see chapter 33 of the manual.

```
Alarm
Door Sens.      : no
```

Range of changes: no / yes
Factory setting: no

25.2 Alarm - Flue Gas Flap Opening Sensor

This parameter allows enabling of an alarm to indicate opening of the flue gas flap.

For connection description, see chapter 33 of the manual.

```
Alarm
Flap Sens.      : no
```

Range of changes: no / yes
Factory setting: no

25.3 Alarm - Pump Temperature

This parameter enables setting a temperature the exceeding of which will trigger emergency start of both pumps (the UHW pump will start if the controller works in the utility hot water heating mode).

```
Alarm
Pump Temp.    :80°
```

Range of changes: 80°÷99°
Factory setting: 80°

25.4 Alarm - Boiler Temperature

This parameter enables setting a boiler temperature above which the "Boiler Temp." alarm will be triggered. Both pumps will start in the emergency mode.

```
Alarm
Temperat. : 85°
```

Range of changes: 80°÷99°
Factory setting: 85°

26. Servicing Menu - Maximum Temperature

This menu enables setting of the maximum boiler and flue gas temperature values to be set under "Main Menu / Temperatures".

< Max. temp. >

26.1 Maximum Temperature - Maximum Boiler Temperature

This parameter enables setting of a maximum boiler temperature. This setting caps the maximum boiler temperature in the "Main Menu / Temperatures" settings.

Boiler Temp.
Max. temp.   :90°

Range of changes: 85°÷97°
Factory setting: 90°

26.2 Maximum Temperature - Maximum Flue Gas Temperature

This parameter enables setting of a maximum flue gas temperature. This setting caps the maximum flue gas temperature in the "Main Menu / Temperatures" settings.

Flue Temp.
Max. temp.   :280°

Range of changes: 180°÷280°
Factory setting: 280°

27. Servicing Menu - Language

This setting selects the language of the displayed messages.
To enter the settings: Servicing Menu / Language

<   Language   >

28. COMFORT SYSTEM Function

The embedded COMFORT SYSTEM function in the controller prevents obstruction of the circulation pump by scale depositing on the pump's impeller. The controller automatically turns the circulation pump on for 30 seconds every 24 hours, counting from its last startup. Operation of the pump in this mode is indicated by a blinking PUMP indicator light. The function starts up 24 hours since the startup of the controller.

Caution: For the COMFORT SYSTEM function to be active, leave the controller connected to the grid after the end of the heating period.

29. Freezing Protection Function

The controller protects the heating installation against freezing, causing permanent enabling of both pumps of the temperature of water in the system drops to 4 °C or below (the UHW pump will start provided that the controller is working in the utility hot water heating mode).

30. Alarms - Description

30.1 Boiler temperature exceeded

If the boiler temperature exceeds the value preset under Alarm - Boiler Temperature, the Boiler T. message will appear on the screen and intermittent sound signal will be generated.

```
06:25      Temp:88°
Boiler T.
```

Cancel the alarm by pressing ↰

30.2 Boiler Temperature Sensor Damaged

If the boiler temperature sensor is damaged, the Boiler S. message will appear on the screen (the ventilator will shut down), "--" will appear instead of the boiler temperature, and continuous sound signal will be emitted.

```
06:25      Temp:--°
Boiler S.
```

Cancel the alarm by pressing ↰

30.3 UHW Temperature Sensor Damaged

If the UHW temperature sensor is damaged, the UHW S. message will appear on the screen (the UHW pump will shut down), "--" will appear instead of the UHW temperature, and a continuous sound signal will be emitted.

```
06:25      Temp:60°
UHW S.
```

Cancel the alarm by pressing ↰

30.4 Flue Gas Temperature Exceeded

If the flue gas temperature exceeds the value set under Max. Temp. / Flue Gas Temp., the Flue Gas T. message will appear on the screen and an intermittent sound signal will be generated

```
06:25      Temp:88°
Flue Gas T
```

Cancel the alarm by pressing ↰

30.5 Flue Gas Temperature Sensor Damage

If the flue gas temperature sensor is damaged, the Flue Gas S. message will appear on the screen.

```
06:25      Temp:--°
Flue Gas S.
```

Cancel the alarm by pressing ↰

30.6 Thermal Fuse

If the boiler temperature exceeds 90 °C, emergency shutoff of the ventilator will occur. Simultaneously, the screen will display the THERMAL FUSE message and intermittent sound signal will be emitted (provided that it is enabled - see Alarm - Sound).

```
THERMAL FUSE
```

When the temperature drops below 70°C, cancel the alarm signal and unblock the thermal fuse operation by pressing ↰ .
In case of protection with a STB sensor, unscrew the safety nut and reset the sensor with a special button.

30.7 Open Door or Flue Gas Flap

If the door or flue gas flap is opened, a sound alarm will start and the screen will show the "OPEN DOOR" or "OPEN FLAP" message. Emergency shutdown of the blower ventilator will take place. The exhaust ventilator will be enabled.

```
OPEN DOOR
```

Cancel the alarm by pressing ↰

31. Technical Specifications

Range of the measured temperatures	- 9 °C to + 99 °C
Range of temperature settings for the boiler	+ 60 °C to + 97 °C
Range of temperature settings for the UHW heater	+ 40 °C to + 70 °C
Range of temperature settings for the CH pump	+ 60 °C to + 90 °C
Smooth ventilator start	yes
Adjustable maximum ventilator power	1% - 100 %
UHW pump hysteresis (on/off difference)	2 °C to 9 °C
Air flow adjustment (option of complete	operation: 0 - 90 seconds
disabling of the blower)	interval: 5 - 240 minutes
Adjustable boiler extinction time	0 - 45 minutes
Allowable load of outputs	ventilator: 100 W / 230 V
	exhaust ventilator: 100 W / 230 V
	CH pump: 200 W / 230 V
	UHW pump: 100 W / 230 V
Rated supply voltage	~ 230 V, 50 Hz
Electrical protection	2 x 5 A
Relative air humidity	< 95 %
Case protection class	IP 20
Ambient temperature	0 °C to + 40 °C

*Caution: Depending on the programme version, some setting ranges may differ from those above.

## 32. Principles of disposal of waste electrical and electronic equipment
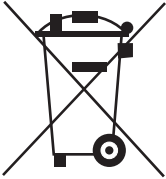
Disposal of waste electrical and electronic equipment (applicable in European Union states and in other European countries with their own collection systems).

This symbol, placed on a product or package thereof (pursuant to the Act of 29 July 2005 on the waste electrical and electronic equipment) means such a product cannot be treated as municipal waste. It should be transferred to an appropriate collection point for waste electrical and electronic equipment. By providing appropriate storage, you will help prevent adverse effects to the natural environment and human health. Recycling helps preserve natural resources. For detailed information on recycling of this product, information on the established system of collection or gathering of waste electrical and electronic equipment, and a list of processing plants, contact our office or our distributors.

## 33. Flue Gas Flap and Door Opening Sensors

The controller enables connection of opening sensors for the flue gas flap and the door. This option is activated under "Servicing Menu / Alarms / Door Sen-sor Alarm and Flap Sensor Alarm". Connect the sensor circuit to the controller inputs designated by ⊥ and **IN**. The sensor circuit should be performed ac-cording to the diagrams below.

Sensor spreading causes an increase in resistance of the circuit by the R val-ue and triggering of the alarm. Depending on this value, the appropriate alarm will start and a message will appear on the display. The exhaust ventilator will be enabled and the blowing one will be disabled.
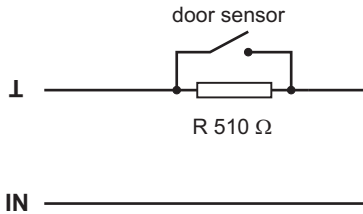

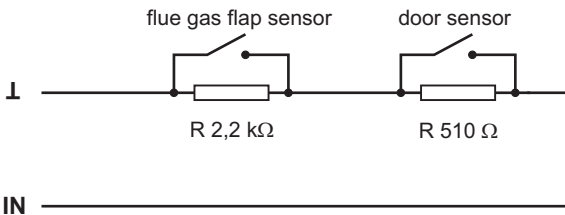opening sensor

R
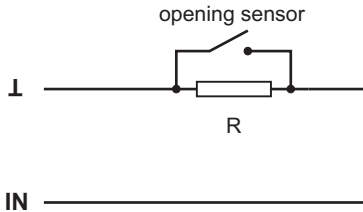
R = 2,2 kΩ   flue gas flap opening alarm

R = 510 Ω   door opening alarm

flue gas flap sensor

R 2,2 kΩ
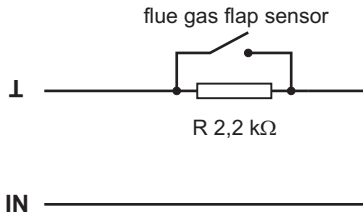
Circuit diagram for the flue gas flap sensor

door sensor

R 510 Ω

Circuit diagram for the door sensor

flue gas flap sensor   door sensor

R 2,2 kΩ   R 510 Ω

Circuit diagram for both sensors

CE